THE DEVELOPMENT OF *IN VITRO* STUDY OF PLANT REGENERATION OF *ETLIGERA COCCINEA* FROM RHIZOME AND INFLORESCENCE DERIVED CALLUS

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SYNOPSIS

Tuhau, *Etlingera coccinea* (Blume) S. Sakai & Nagam, is a unique member of the Zingiberaceae family. Although it has a pungent odor, it is regarded as a delicacy by the Kadasan Dusun community in Sabah. The inner stem and its florescence are eaten and the whole plant is regarded to have importance in traditional medicine. This species grows to about 10m in high, its inflorescence grows separately from its young shoots, and appears directly from ground or either half immersed or buried in the ground. Micropropagation is a rapid propagation technique, but the biggest problem is contamination with fungi and bacteria. A wide range of microorganisms (filamentous fungi and bacteria) have been identified as major contaminants in this research. The contaminants have been introduced with explant, during surface sterilization methods in the laboratory by endophytic bacteria. Meanwhile, Fungus may also arrived with an explant, airborne or enter culture. Rhizomes and stems of *Etlingera coccinea* were used as explants (5-10mm width) and were cultured in different types of plant growth regulators with different concentration (NAA, BAP, 2,4-D, TDZ and KIN) under fully light condition. Rhizomes and stems scales rinsed under running tape water for 1 hour were surface sterilized, then soaked in solutions containing ethanol (95%)(v/v) and different concentration of sodium hypochlorite (20%, 10%, 15%) (v/v). During the experiment, fungal contaminants were observed in full treatments. Determined contaminants were identified according to their morphological characteristic. There are also no callus have been induced for all treatments due to fungal contaminants.

SINOPSIS

Tuhau, *Etlingera coccinea* (Blume) S. Sakai & Nagam, merupakan kumpulan yang unik dalam famili Zingiberaceae. Walaupun ia mempunyai bau yang tajam, ia dianggap sebagai makanan istimewa oleh komuniti Kadasan Dusun di Sabah. Lapisan dalam batang dan bunga dijadikan makanan, manakala keseluruhan pokok tersebut dianggap penting dalam bidang perubatan tradisional. Spesies ini boleh tumbuh sehingga kira-kira 10m tinggi, ia tumbuh secara berasingan daripada pucuk muda, dan tumbuh secara langsung daripada tanah atau separuh yang tenggelam atau tertanam di dalam tanah. Mikropropagasi merupakan satu teknik pembiakan yang cepat, tetapi masalah yang utama ialah kontaminasi oleh kulat dan bakteria. Pelbagai jenis mikroorganisma (kulat dan bakteria berserabut) telah dikenal pasti sebagai punca kontaminan dalam kajian ini. Kontaminasi ini telah dibawa bersama eksplan, semasa proses sterilisasi di dalam makmal oleh bakteria endophytik. Sementara itu, kulat juga boleh datang melalui eksplan, atau melalui udara dan memasuki kultur. Rizom dan batang *Etlingera coccineae* telah digunakan sebagai eksplan (5-10mm lebar) dan dikulturkan dalam media yang mengandungi berbagai jenis pengawalatur pertumbuhan tumbuhan (NAA, BAP, TDZ dan KIN) di letakkan dibawah pengeraman cahaya penuh . Rizom dan batang telah dibilas di bawah air yang mengalir selama 1 jam untuk tujuan sterilisasi, kemudian direndam dalam larutan yang mengandungi etanol (95%) (v/v) dan larutan sodium hipoklorit pada kepekatan yang berbeza (20%, 10%, 15%)(v/v). Semasa eksperimen dilakukan, semua rawatan media telah dijangkiti oleh kontaminasi fungi. Pengecaman fungi telah dikenalpasti berdasarkan ciri- ciri morfologi. Selain itu, tiada induksi callus yang belaku pada semua rawatan disebabkan jangkitan fungi.